

WHAT IS CLAIMED IS:

1. A method for overlay measurement using a multiplex filter, comprising:
selecting a first filter from a plurality of filters and positioning the first filter
5 underneath a lens of an overlay measurement apparatus;
determining whether overlay marks formed on a wafer are perceptible
through the lens and the first filter;
measuring the overlay marks if the overlay marks are perceptible; and
replacing the first filter with a second filter from the plurality of filters if the
10 overlay marks are not perceptible through the first filter.
2. The method of claim 1, further comprising:
determining whether the overlay marks are perceptible through the lens
and the second filter; and
15 measuring the overlay marks if the overlay marks are perceptible through
the second filter.
3. The method of claim 1, further comprising:
analyzing measured values of the overlay marks;
20 calculating results of the analysis of the measured values; and
feeding calculated data into the overlay measurement apparatus.
4. The method of claim 1, further comprising:
stopping the method if the overlay marks are not perceptible through each
25 filter from the plurality of filters.
5. The method of claim 1, wherein the plurality of filters include at least three
filters.
- 30 6. The method of claim 1, wherein the plurality of filters includes a yellow

filter, a green filter and a red filter.

7. The method of claim 6, wherein the first filter is the yellow filter.

5 8. The method of claim 6, wherein the second filter is one of the green filter and the red filter.

9. The method of claim 1, further comprising replacing the second filter with a third filter from the plurality of filters if the overlay marks are not perceptible
10 through the second filter.

10. The method of claim 1, further comprising continuously replacing each of successive replacement filters with an unused filter from the plurality of filters until the overlay marks are perceptible through one of the replacement filters or each
15 one of the plurality of filters has been used.

11. The method of claim 1, wherein the multiplex filter includes the plurality of filters positioned thereon and the step of replacing is performed by rotating the multiplex filter.
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12. The method of claim 1, wherein the step of replacing is performed automatically.

13. A method for overlay measurement, comprising:
25 selecting a first filter from a plurality of filters and positioning the first filter on an overlay measurement apparatus;

determining whether overlay marks formed on a semiconductor surface are able to be measured using the first filter;

measuring the overlay marks if the overlay marks are able to be
30 measured; and

replacing the first filter with a second filter from the plurality of filters if the overlay marks are not able to be measured using the first filter.

14. The method of claim 13, further comprising:

5 determining whether the overlay marks are able to be measured using the second filter; and

measuring the overlay marks if the overlay marks are able to be measured using the second filter.

10 15. The method of claim 13, wherein the plurality of filters includes a yellow filter, a green filter and a red filter.

16. The method of claim 13, further comprising replacing the second filter with a third filter from the plurality of filters if the overlay marks are not able to be
15 measured using the second filter.

17. The method of claim 13, further comprising continuously replacing each of successive replacement filters with an unused filter from the plurality of filters until the overlay marks are able to be measured using one of the replacement filters or
20 each one of the plurality of filters has been used.

18. The method of claim 13, wherein the step of replacing is performed by automatic rotation a multiplex filter including the plurality of filters.

25 19. A method for overlay measurement, comprising:

using a plurality of filters in conjunction with an overlay measurement apparatus to perceive overlay marks on a semiconductor surface; and measuring perceptible overlay marks.

30 20. The method of claim 19, wherein each filter of the plurality of filters is

alternately positioned in line with a lens of the overlay measurement apparatus.